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FAO PLANT PROTECTION BULLETIN

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FAO Plant Protection Bulletin

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World Reporting Service on Plant Diseases and Pests

Some Diseases of Sugar Cane Newly Found in India

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The present notes record some diseases of sugar cane which were not previously known to exist or not recognized as of any economic importance in India.

Rust

Sugar cane rust, caused by *Puccinia kühnii* (Krueg.) Butler, is assuming increasingly greater importance since its first reported occurrence in India in 1950.[1] Although rust-affected specimens of sugar cane were deposited in the *Herb. Crypt. Ind. Orient.* of the Indian Agricultural Research Institute as far back as 1918, the disease was considered to be of rare occurrence until 1950, when it appeared in a serious outbreak in Ahmednagar district of Bombay, affecting a very promising commercial and popular cane variety, Co. 475. The disease manifests itself in the form of small elliptic, brownish to tawny colored, innumerable pustules, causing the leaves to wither and, in case of severe infection, hindering the development of the crop.

On account of the recurrence of this disease each year, the Bombay Department of Agriculture has now, on the advice of the Indian Central Sugarcane Committee, withdrawn this susceptible variety Co. 475 from general cultivation in spite of its excellent agronomic performance.

The rust was also reported to occur on varieties Co. 876 and Co. 928 in Nellikuppam area in Madras on the east coast and on Co. 475, Co. 421, Co. 467, Co. 603, Co. 658, Co. 732 and P. O. J. 2878 in Hyderabad-Deccan area on Peninsular India. The rapid spread of the disease to other localities and other commercial varieties of sugar cane is causing great concern to sugar industry.

So far the disease in an epidemic form was considered to be confined only to the cane tract in South India, appearing late in the season during the cooler months – October to January. But during the present season in 1956 a sudden epidemic was observed in February in northern India at Gola Gokarannath, Uttar Pradesh, near the foot-hills of Nepal, affecting a recently released cane variety, Co. S. 510, which occupies an area of over 5,000 acres. The disease first appeared on the October-planted crop and has now spread to the seedlings of the crop newly planted in February and also to the ratoon crop. The attack was so severe that the badly affected fields gave the appearance as if the crop had been burnt.

Uredospores of this rust fungus have been found to germinate freely in water within 12 hours over a wide range of temperatures, from 16° to 29° C., the optimum being at 20° to 25° C. It has not been possible to germinate the teleutospores and the life history of this fungus has not been worked out so far.

From taxonomic point of view the Indian collections of this rust have been of special interest as they show the presence of the teleuto-stage on sugar cane. The original description of teleutospores of *Puccinia kühnii* was based upon a collection on *Saccharum spontaneum* and the only other record on its

[1] Chona, B. L. and R. L. Munjal. 1950. *Puccinia kühnii* (Krueg.) Butler on sugar cane in India. Curr. Sci. 19 : 151-152.

Figure 1. Grassy shoot disease of sugar cane variety Co. 419.

production of teleutospores on sugar cane was from Formosa.[1]

Rust infection of several wild species of *Saccharum* and related genera, such as *Saccharum sara*, *S. narenga*, *S. spontaneum*, *Erianthus arundinaceum* and *Sclerostachya fusca*, has been reported from India but none of those collections have been found to infect *Saccharum officinarum*, indicating thereby the possible existence of physiologic races of the rust.

Grassy Shoot Disease

This new disease is characterized by the production of a large number of thin, small, spindly shoots, giving the plant a bushy appearance. The growth of the plant is arrested and the shoots remain very small and grassy (Figure 1). The disease is found only in the cane variety Co. 419 in Bombay-

[1] FUJIKURO, Y. 1914. A list of Formosan rust fungi. Trans. Nat. Hist. Soc. Formosa 4 (19) : 1-12.

Deccan area. Externally it has some resemblance with the disease caused by *Sclerophthora macrospora* and the Australian dwarf disease of sugar cane, but it is quite distinct from either. The disease is systemic and is perpetuated by the use of infected seed-cuttings. It has been shown to be of virus origin, as it has been successfully transmitted by a species of aphid, probably *Aphis sacchari* Zehnt., as well as by mechanical means. It would be useful to consider now, as a precautionary measure, the arrangements for replacement of Co. 419 by some other suitable and resistant cane varieties in case the disease should become prevalent.

Hot water treatment of seed cane material at 50° C. for two hours has been found to control this disease to an appreciable extent and the cost of the treatment is estimated at Rs. 50[1] per acre but the question of secondary infection requires careful attention.

Ratoon Stunting

The presence of the virus disease known as ratoon stunting has been suspected in the cane crop at Gola Gokarannath and Daurala in western Uttar Pradesh. Should this be confirmed, immediate action will be necessary to keep the disease under check and exhaustive surveys of all the cane areas in the country should be carried out in order to ascertain the distribution of this disease.

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[1] One Indian rupee = U. S. $ 0.21 or 1 s. 6 d.

Experiments on the Control of the Tropical Fig Borer in Israel

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THE tropical fig borer, *Batocera rufomaculata* (de Geer), which is a known pest in India and other countries in South East Asia as well as in East Africa and the West Indies, invaded Israel about seven or eight years ago. Its presence in Israel was reported for the first time by Bytinski-Salz.[1] In that report a description of the pest as well as some biological data were given.

During the last six years, the tropical fig borer population in Israel has increased rapidly and spread throughout the northern and central parts of the country and it was reported to have extended into neighboring countries to the north and east. In view of its capacity for rapid dispersion, this pest undoubtedly constitutes a serious threat to other fig-growing countries in the eastern Mediterranean basin.

Although reported as a polyphagus pest in its native lands, *Batocera rufomaculata* so far has attacked only fig trees in Israel. Adult beetles were found to infest young branches of avocado trees but the larvae are not injurious to them. On the other hand, fig trees are heavily damaged by its larvae which in their young stages destroy the bark and phloem of the lower part of the trunk and in their advanced stages bore large tunnels in the wood. During the last six years this insect killed more than 50 percent of the healthy and vigorous fig trees in the Nazareth area, Mount Carmel and Wadi Ara.

In Israel, the tropical fig borer develops one generation each year. Emergence of adult beetles begins in June. The highest adult population is found in August. Eggs are laid on the lower parts of the trunk and hatching occurs during the summer months. In November the majority of the larvae have passed their fifth instar but are still active. During December the tunnels are closed with very coarse and dense shavings and the larvæ enter into the overwintering phase. Pupation starts at the end of April and continues during May and June. A thorough study of its biology and life history in Israel will be published by Bytinski-Salz elsewhere.

Methods of Control

In view of the importance of *Batocera rufomaculata* to fig culture, a research program was initiated in 1955 to determine the effectiveness of various means for its control.

1. *Preventive measure.* In order to prevent egg-laying, hatching, and feeding of the newly hatched larvæ, the bark of the lower part of the trunk was painted with an insecticidal formulation.

2. *Treatment of infested trees.* Two methods for the application of insecticides were tested for their effects on larvæ feeding below the bark or boring in the xylem:

(*a*) Painting localized areas of the bark, under which larvæ are situated, with a wax preparation containing an insecticide. This was tried for the control of young and medium-sized larvæ and was carried out during summer before the larvæ had penetrated into the wood.

(*b*) Injecting an insecticide into larval burrows to kill larger larvæ after they have entered the wood, but before the holes have been closed.

To find an appropriate chemical, six insecticides of high potency were tested in laboratory in various concentrations, namely demeton (Systox), parathion, diazinon, lind-

[1] BYTINSKI-SALZ, H. 1952. Two important tree borers in Israel. FAO Plant Prot. Bull. 1 : 38-39.

ane, dieldrin and malathion. Those trials demonstrated that larvæ of the tropical fig borer are most susceptible to parathion and lindane. With the assistance of toxicologists and chemists, a preparation containing a mixture of plastic waxes suitable for formulation with parathion and lindane was obtained. It proved to be non-phytotoxic to young fig trees, stable, and to possess good penetrating power. The formulation with lindane, however, was found to be somewhat injurious to the bark, and therefore in field trials only a parathion preparation found to be safe, containing 2.5 percent active ingredient, was used.

The residual effect of parathion impregnated into the bark was studied by introducing adult beetles into cages placed over treated fig trees. It was found that one treatment with parathion during the summer was effective for many months and was practically sufficient for the whole period of larval activity.

Results of Field Experiments

Field experiments were carried out in 1955 on a large scale and in areas heavily infested with the borer. For the application of the preventive measure, several fig groves were chosen and every tree was examined. A map was accordingly drawn to show the location of the trees which were infested and those free from infestation at the beginning of the experiments. A number of insect-free trees were treated by painting the lower part of the trunk with the wax preparation containing 2.5 percent parathion. Weekly observations were made to determine the condition of treated and non-treated trees. The results, as given in Table 1, indicate that only 5 out of 506, or about 1 percent of treated trees had become infested at the end of the larval season, whereas among 369 non-treated trees, 110, or about 30 percent, were attacked.

For the localized bark treatment, experiments were carried out in various areas with selected plots of trees which were infested with young larvæ and the spots of the bark, where the larvæ were located, were superficially treated with the parathion preparation applied by a paint brush. Records were taken 10 to 15 days after the treatment, and the results, as given in Table 2, show that about 95 percent of the larvæ were killed by this treatment.

Experiments on the efficiency of injecting insecticides into larval burrows were carried out during autumn with the following materials: Cresyl-creosote in mixture with chloroform, cresyl-creosote in mixture with benzine, and benzine only. The mixture of cresyl-creosote with chloroform was injurious to the trees, and satisfactory results were obtained only with benzine. For the treatment of each hole, about 2 cubic centimeters of ordinary benzine is required. As shown in Table 3, such treatments killed all the larvæ in the burrows.

TABLE 1. *Results of experiments on the control of* Batocera rufomaculata *by treating the lower part of the tree with a wax parathion preparation*

Location of the experiment	Number of trees			Number of trees newly infested	
	Total	Treated	Non-treated	Treated	Non-treated
Beit Haemek					
Old trees	77	17	60	3	40
Young trees	449	356	93	1	11
Nazareth	22	9	13	1	4
Mt. Carmel	71	16	55	0	16
Kfar Yassif	70	22	48	0	23
Acre Exp. Sta.	186	86	100	0	16
Total	875	506	369	5	110

TABLE 2. *Results of localized treatments with a wax parathion preparation for the control of* Batocera rufomaculata

Location of the experiment	Number of trees treated	Number of spots treated	Number of larvae, 10-15 days after treatment	
			Living	Dead
Beit Haemek				
Exp. 1	4	14	0	14
Exp. 2	25	65	4	59 [a]
Exp. 3	12	51	2	49
Mt. Carmel	10	11	0	11
Nazareth	7	13	0	13
Total	58	154	6	146

[a] Two larvæ were not located

Discussion

From the results of experiments carried out in 1955, it is obvious that fig trees can be protected from the larvæ of tropical fig borers, even in heavily infested areas. In treating the bark of a tree with an insecticide of high potency such as parathion, there are two possibilities which should be taken into consideration. First, the possibility of parathion translocation in the sap and its penetration into the fruit, though a very remote one, should be investigated to avoid any hazardous effects on man. Second, phytotoxicity – or other physiological effects – though not evident immediately, may occur after treatments are repeated a number of years.

The localized application of an insecticide to the infested areas appears to be very effective in killing the larvæ underneath the bark, if done during the summer when the larvæ are in early developmental stages. The presence of larvæ can be easily recognized by

TABLE 3. *Results of experiments on the control of* Batocera rufomaculata *by injections with benzine*

Location of the experiment	Number of trees treated	Number of holes treated	Number of dead larvae
Mt. Carmel			
Exp. 1	7	26	26
Exp. 2	9	9	9
Kfar Yassif	3	10	10
Beit Haemek			
Exp. 1	10	14	14
Exp. 2	8	9	9
Exp. 3	8	8	8
Total	45	76	76

the shavings protruding from the bark, and the treatment can be applied by a paint brush. With ordinary precaution, no hazard would be involved. The quantity of the insecticide required is so small that translocation or phyto-toxicity should not create a problem.

In autumn when the larvæ have bored into the wood, but the burrows are not yet closed, injecting ordinary benzine into the burrow is effective. This treatment, however, should be regarded as complementary to the localized treatment of the bark, for after the larvæ have entered the wood, the main damage to the tree has already been done.

Plant Disease Situation in the United States[1]

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A New Maize Disease Caused by Curvularia maculans

NELSON, R. R., reporting on co-operative investigations of the U. S. Agricultural Research Service and the North Carolina Agricultural Experiment Station, states that during the summer of 1955, *Curvularia maculans* (Bancroft) Boedijn was isolated repeatedly from lesions on maize leaves throughout the coastal plain of North Carolina and Georgia. The fungus was associated frequently with *Helminthosporium maydis* Nisikado & Miyake, the causal agent of southern leaf blight, but more often pure cultures of *C. maculans* were obtained from lesions distinctly different from those of *H. maydis*. Lesions similar to those observed in the field were produced on maize inbreds and hybrids in the greenhouse by inoculations with spore suspensions of *C. maculans* and the fungus was recovered in pure culture.

The pathogen attacks leaves and leaf sheaths in all stages of development of the plant. Symptoms first appear on leaves as minute straw-colored lesions, 1-2 millimeters in length, and usually limited laterally by the leaf veins. Individual lesions seldom are more than 5-7 millimeters long, but lesions may coalesce to form necrotic areas a centimeter or more in length. Individual lesions frequently are surrounded by a reddish brown margin (Figure 1).

Isolates of the pathogene from North Carolina and Georgia were found to be identical with cultures of *Curvularia maculans* received from the American Type Culture Collection, Washington, D. C., and from the *Centraalbureau voor Schimmelcultures*, Baarn, the Netherlands. The European culture was identified by Boedijn, who erected the genus *Curvularia* in 1933. The cultures from both Washington and the Netherlands produced symptoms on maize similar to those described for isolates from North Carolina. *C. maculans*, however, was not previously described as a plant pathogen in the literature.

An Unusual Fruit Disorder in Apple

D. F. Millikan and W. R. Martin, Jr. of the University of Missouri report that in October 1955 several severely blemished apples were sent to the Missouri Agricultural Experiment Station for examination. These fruits were of the popular variety, Red Delicious, picked from a tree that had been top-worked on a hardy interstock, Virginia Crab. Combinations involving this interstock often show distortions and severe cracking on the Virginia Crab stem, exhibiting symptoms of an apparently infectious nature. It was stated that every fruit on two trees, in an orchard of 300 trees of which half were Red Delicious, had shown this particular disease manifestation for two consecutive years.

This trouble is characterized by the formation of a corky periderm on the fruit skin (Figure 2) much like that caused by spray injury. This epidermal scarring tends to follow a linear pattern of patches extending from the stem to the apex. These patches may be small and irregular. Sometimes they coalesce into oblong ones as much as one inch in length. Occasionally, this scarring may be so extensive as to include one entire side of the fruit, completely obscuring the natural skin pigments. The distribution of these symptoms on the affected fruits and the random distribution of the affected trees within orchards indicated that the condition

[1] This report is based upon material submitted by collaborators of the Plant Disease Epidemics and Identification Section, Agricultural Research Service, United States Department of Agriculture.

was not due to spray injury. Furthermore, it is unlikely that any such condition would affect every fruit on a single tree. Radial scarring emanating from the apical end to form the rough outline of a star usually is associated with this disorder while similar radiations may or may not appear on the stem end. Except for disfigurement of the fruit, the only adverse effect on quality seems to be a pronounced retardation of the ripening process.

From examination of four orchards in the vicinity of the orchard where the disorder was originally reported, the diseased condition appears to be fairly common within that region of northern Missouri.

Parasitic Nematodes Associated with Strawberries in Kentucky

Richard A. Chapman of the Kentucky Agricultural Experiment Station reports that during September and October 1955, 50 strawberry fields in 18 counties in Kentucky were systematically sampled to determine the nematode populations associated with the

Figure 1. Symptoms caused by *Curvularia maculans* on maize leaves from greenhouse inoculations.

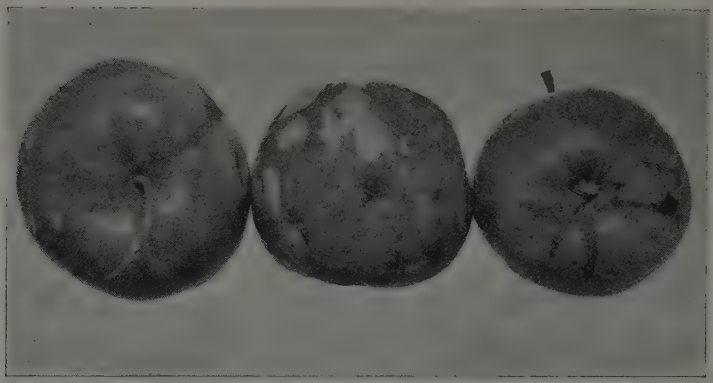

Figure 2. Fruit disorder of apple observed in Missouri.

crop. The varieties were Tennessee Beauty, Blakemore, Pocahontas, and Tennessee Shipper, and all had been planted in the spring of 1955.

The fields were sampled by digging plants from 15 to 20 locations per acre. Roots and some associated soil were placed in plastic bags, each bag containing specimens from approximately ½ acre. Different varieties in the same field were sampled separately. Each bag of material was processed separately. Generic identifications of certain phytoparasitic nematodes were made while counting. Specific identifications were made from specimens preserved in 5 percent formalin.

Four species of *Pratylenchus* were found in samples from 45 fields, as follows: *P. penetrans* Cobb, 31 fields; *P. scribneri* Steiner, 15; *P. brachyurus* Godfrey, one; *P. zeae* Graham, one. *P. brachyurus* occurred with *P. scribneri* and *P. zeæ* with *P. penetrans*. In one case *P. penetrans* and *P. scribneri* occurred together. These were the only obvious cases of mixed populations.

Pratylenchus pratensis de Man was not found in these samples, but had previously been reported in strawberries from Kentucky.

Meloidogyne hapla Chitwood was found in samples from 17 fields. In samples from 14 fields infection was very light and probably would not have been detected by an examination of roots in the field. Larvae of *Meloidogyne* were found in Petri dishes containing roots from these samples and to find a few pinhead-sized galls in the roots, a diligent search was necessary. In all cases mature females having the typical perineal pattern of *M. hapla* were present in the galls.

Two species of *Tylenchorhynchus* were found, *T. claytoni* Steiner from 14 fields and *T. dubius* (Bütschli) Filipjev from eight fields. No obvious mixtures of species were observed.

Xiphinema americanum Cobb, the only species of this genus found, occurred in samples from 36 fields.

A species of *Paratylenchus* was found in samples from 30 fields. Apparently all collections were the same species, possibly *P. hamatus* Thorne & Allen, but no males were found and the identification is doubtful.

Helicotylenchus nanus Steiner was the only spiral nematode found, in samples from nine fields.

In addition, nematodes of the genera *Aphelenchus*, *Tylenchus*, and *Psilenchus* were found. These were not identified further. No nematodes of the genera *Aphelenchoides*, *Criconemoides*, or *Hoplolaimus* were noted, although some members of these genera had been found in previous samples from some of the same fields.

The numbers of the various species found varied widely. No relation between the numbers of nematodes per gram of roots (*Pratylenchus* and *Meloidogyne*) or per kilogram of soil (*Tylenchorhynchus*, *Xiphinema*, *Paratylenchus*, and *Helicotylenchus*) and the con-

dition of plants in the fields, which had been rated poor, fair, medium, and excellent, could be determined. Similarly, there was no apparent relation between the number of species or the number of individual nematodes in various combinations of species occurring in the same field and the condition of the plants. This lack of relationship is not surprising because of the late-season sampling.

Pratylenchus spp. and *Meloidogyne hapla* are recognized pathogens of strawberries. The pathogenicity of the other species remains to be determined. The widespread association with strawberries indicates that species of *Tylenchorhynchus*, *Xiphinema*, and *Paratylenchus* should be regarded as potentially important pathogens of this crop plant in Kentucky.

Outbreaks and New Records

Puerto Rico

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Chinch Bug Outbreak Causing Serious Damage to Forage Grasses

THE delay in the advent of the rainy season in 1956 apparently allowed chinch bug (*Blissus leucopterus* Say) populations to attain outbreak proportions. Usually the dry season in Puerto Rico is not long enough to permit serious population increases. Chinch bugs suffer a heavy mortality from entomogenous fungi when the disease becomes epidemic during wet weather. In this year, however, extensive damage attributed to these bugs was seen in lawn and forage grasses. In certain regions the attacks were so severe that large areas of the stricken grasses succumbed to the combined effects of loss of plant sap and continued drought.

A survey made of the pastures of the north coast of Puerto Rico revealed very high incidences of chinch bug on pangola grass (*Digitaria decumbens*) and guinea grass (*Panicum maximum*). After having killed the grasses, migrations of these bugs from mixed pangola pastures were observed. At one farm visited, the owner had replanted a destroyed pangola pasture with maize only to have most of the seedlings again destroyed. High incidences of chinch bugs and the resulting heavy destruction were found also in common guinea grass and its variant type known in Puerto Rico as "gramalote." The latter variety is an important forage grass of the more humid areas of the northern coast. As reported[1] previously, "gramalote" is less susceptible to chinch bug attack than the regular guinea grass. Pangola, under the conditions encountered, appeared to be much more susceptible to infestation than guinea grass. In fact, chinch bugs may well limit the utility of this recently introduced species unless control measures are found.

Surveys made of the southwestern and southern regions of Puerto Rico uncovered some damage to guinea grass where the incidence of chinch bugs had reached a high level, presumably due to lack of rain. In these regions, however, the outbreaks were not nearly as serious as those that occurred in the northern sections of the island. Some chinch bugs were found on most of the other species of grasses examined but their numbers did not constitute a serious problem.

A number of grass plants, thought to have been killed by extended drought, were examined in the field and found to be victims, more directly, of chinch bugs. The crown and culms immediately above the soil line often were literally covered with adults and nymphs of this bug. The drought apparently did, however, play a dual role quite effectively. The lack of rain allowed the bug populations to reach damaging proportions and further weakened the attacked plants.

[1] WARMKE, H. E. 1951. Cytotaxonomic investigations of some varieties of *Panicum maximum* and of *P. purpurascens* in Puerto Rico. Agron. Jour. 43 : 143-149.

United States

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Mediterranean Fruit Fly Found in Florida — Eradication in Progress

An incipient infestation of the Mediterranean fruit fly (*Ceratitis capitata* Wied.) was discovered on 13 April 1956 in a newly developed residential suburb of Miami, Dade County, Florida. Infestations have since been found in adjacent Broward County. As soon as the identity of the insect was

established, the State Plant Board of Florida took immediate action to halt movement from the infested area of any plant material likely to harbor the insect. Scouting of the area was at once begun and all varieties of fruit in which the larvae could live are being removed and promptly destroyed. A bait spray containing malathion will be repeatedly applied to fruit trees and other host plants. An area around Miami has been kept under close supervision. Through concerted Federal-State efforts, prospects for stamping out the infestation appear favorable.

Since the discovery of the fly, no host material from Florida or elsewhere in the United States has been certified for export at any port unless it was believed to be free from risk of transmitting the fly.

A Federal quarantine against the Mediterranean fruit fly became effective 16 May. The quarantine will regulate movement from Broward and Dade Counties of fruits and vegetables and other garden and orchard products of all kinds or types, soil, and other products and articles likely to harbor this serious pest of fruits and vegetables.

This is the fly's second invasion of Florida. It was found for the first time in central Florida in 1929 and was eradicated in less than two years.

Venezuela

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Insects Attacking Sugar Cane

Lesser Cornstalk Borer. The losses of young sugar canes due to the attack of lesser cornstalk borer (*Elasmopalpus lignosellus*) have increased considerably during the past two years in the States of Aragua and Yaracuy in northern Venezuela. The outbreaks generally occur in cane fields previously sown to maize, which is the principal host of the borer. After the harvest of maize, the insect remains in the vicinity, feeding on volunteer plants and then invades the sugar cane crop when the seedlings emerge from the soil.

The larvae bore into the interior of the shoots and penetrate into the underground parts, killing the young canes. Fully grown canes or ratoons, however, have not been observed as being attacked.

Dynastid Beetle. Adults of the Dynastid beetle *Euetheola* (*Dyscinetus*) *bidentata* were observed in June 1955 for the first time to attack newly planted sugar canes in the northern State of Carabobo. The beetles cut off the cane shoots near the base below the surface of the soil. The type of injury that it causes is similar to that of *Elasmopalpus* or *Diatraea*, but the distribution of injured plants has a different pattern. *Euetheola bidentata* attacks plants consecutively and four to eight succumbed young canes can be found in a row, whereas the plants injured by *Elasmopalpus* or *Diatræa* are usually scattered.

Euetheola bidentata attacks also maize and rice. The adult beetles prefer humid conditions and are most abundant in the lower and moist parts of the field.

A New Weevil. A weevil was found in 1955 to feed on sugar cane leaves in the State of Aragua and was described as a new species, *Compsus serrans* Kuschel (*Col., Curculionidae*). The adults feed on leaves along the edge, the affected leaves appearing serrated. At present this insect is not of economic importance.

Orange Moth

The orange moth (*Gymnandrosoma aurantianum*) has been regarded for many years as an insect of potential danger to citrus cultivation in Venezuela. In August 1955 a serious outbreak occurred in the plantations in the State of Carabobo, destroying half of the crop. The larvæ bore into the fruit and devour the flesh. Through those wounds, micro-organisms gain their entrance and cause the fruit to rot. The growers' custom of leaving fallen fruits on the ground and of delaying harvest until market price rises probably attributes much to the multi-

plication of the insect, leading to an outbreak.

This insect attacks mainly sweet orange (*Citrus sinensis*) and, to a lesser degree, grapefruit (*C. paradisi*).

A Cecidomyiid on Cotton

During February 1955, various cotton fields near the Orinoco River in the northern State of Guárico were heavily infested by a Cecidomyiid, possibly *Contarinia gossypii*. This pest might have existed in the country for some time, but this was its first outbreak probably partially induced by the abnormal climatic conditions prevailing. The infestation appeared in patches and the larvæ caused deformation of bolls resulting in losses as high as 30 percent of the crop in the affected patches.

Cydnid Bug on Potato

The population of the Cydnid bug *Cyrtomenus grossus* has been increasing dangerously in potato fields. Main outbreaks were reported from the States of Aragua and Yaracuy. The nymphs and adults feed on underground parts, causing the potato plants to wilt. The potato crops most affected are those planted in newly-opened fields during the first two or three years. This insect appears to be also common in pastures where it apparently does not cause any damage.

Plant Quarantine Announcements

Egypt

1. Order of 10 May 1955, with regard to the entry of wood with bark attached, amends the Order of 3 February 1955 specifying conditions for importation of plants and agricultural products (see *FAO Plant Prot. Bull.* 4 : 73. 1956). The new Order provides that timber with bark may be imported if it has been treated in the same manner as timber infested by borers or bark beetles, i.e., either by hot water at the temperature of 80° C. for three to six hours or by hot air at the same temperature for at least 10 hours.

2. Order of 27 August 1955 amends Act No. 417 of 22 July 1954 (see *FAO Plant Prot. Bull.* 3 : 79. 1955) by deleting medicated cotton from the list of prohibited materials annexed to the Act. Previously the importation of medicated cotton was prohibited unless authorization had been obtained in advance from the Ministry of Agriculture.

3. Order of 6 September 1955 modifies the Order of 3 February 1955 specifying conditions for importation of plants and agricultural products, with regard to plant materials which may be imported without phytosanitary certificates. The new Order authorizes the importation of the following materials to be exempt from the certificate requirement, provided that they are not destined for propagation:

Beans	Haricot beans
Peas	Watermelon seeds
Peanuts	Squash seeds
Chick peas	Coconuts
Lupines	Tamarind
Lentils	

4. Order of 28 September 1955 authorizes the importation of household furnishings containing cotton, if they are accompanied by travelers and if they have been treated before entry by hot air at the temperature of 100° C. for not less than two hours. Cotton contained in furniture was previously prohibited from importation by Act. No. 417 of 22 July 1954.

5. Order of 22 October 1955 amends the Order of 3 February 1955 specifying injurious diseases on imported plants and agricultural products (see *FAO Plant Prot. Bull.* 4 : 111. 1956). *Rhizoglyphus echinopus* (bulb mite) was previously included in List IV of the Order of 3 February 1955 and the importation of any consignment of plant materials infested by it was prohibited. The new Order provides that consignments infested by this mite may be allowed entry after fumigation.

6. Order of 11 January 1956 amends the same Order of 3 February 1955 which authorized the importation of potato consignments with less than 10 percent of the tubers infected by *Actinomyces scabies* or *Spongospora subterranea*. The new Order relaxes further the restriction by permitting the entry of potato consignments containing more than 10 percent infected tubers, if the surface area of infected tubers covered by one or both of the mentioned diseases is less than 10 percent.

United Kingdom (Scotland)

The Importation of Raw Vegetables (Scotland) Order, 1956, which came into operation on 1 April 1956, modifies the restrictions for specified periods of 1956, in respect of certain raw vegetables from Belgium, France and the Netherlands. The provisions are essentially the same as those governing vegetables in the Importation of New Potatoes and Raw Vegetables Order, 1956, for England and Wales.

United States

Foreign Quarantine No. 59 relating to the flag smut disease (see *FAO Plant Prot. Bull.* 1 : 159, 1953) was amended by a notice of 20 February 1956, published in the *Federal Register* Vol. 21, No. 38, 25 February 1956. The Netherlands has been thereby deleted from the list of countries and localities which are known to be infested by *Urocystis tritici* and from which wheat grain and certain other products may not be imported into the United States. This amendment has been adopted because the reported occurrence of this fungus in the Netherlands is believed to be an error caused by a confusion of nomenclature.

News and Notes

Norway and U.S.S.R. Adhere to International Plant Protection Convention

The Governments of Norway and the Union of Soviet Socialist Republics became parties to the International Plant Protection Convention on 23 April 1956 and 24 April 1956 respectively, when their instruments of adherence were received by the Acting Director–General of FAO. The number of governments contracting to the Convention, including both signatory and adhering members, is thus, at the time of writing, 33, namely: Argentina, Australia, Austria, Belgium, Cambodia, Canada, Ceylon, Chile, Denmark, Dominican Republic, Egypt, El Salvador, Greece, Guatemala, India, Iraq, Ireland, Italy, Japan, Korea, Laos, Luxembourg, the Netherlands, New Zealand, Norway, Pakistan, Republic of the Philippines, Portugal, Spain, Sweden, the Union of Soviet Socialist Republics, the United Kingdom, and Yugolsavia.

International Congress of Crop Protection

As approved by the previous session held in Paris in 1952, the Fourth International Congress of Crop Protection will take place at Hamburg, Germany, 8–15 September 1957. Membership of the Congress is open to all interested persons, who, if wishing to receive currently further information, should communicate their names and addresses as soon as possible to:

Biologische Bundesanstalt für Land- und Forstwirtschaft
Messeweg 11–12
Braunschweig, Germany

EPPO Meetings on Fall Webworm and Mediterranean Fruit Fly

Under the auspices of the European and Mediterranean Plant Protection Organisation (EPPO), an international conference on fall webworm (*Hyphantria cunea*) will be held in Belgrade, Yugoslavia, 4–6 September 1956 and another on Mediterranean fruit fly (*Ceratitis capitata*) in Bonn, Germany, 26–28 September 1956.

During 1955, fall webworm spread southwards in Yugoslavia and was found for the first time in southern Germany. The forthcoming conference on this pest will discuss its incidence and biology in infested countries and the programs of chemical and biological control. After the discussions, a tour to the infested areas in the Vojvodina to see control operations in the field and visits to the biological control laboratory at Zemun and the Plant Protection Institute at Zagreb will be arranged.

At the first conference on Mediterranean fruit fly held in Algiers in January 1954, EPPO was requested to explore ways and means of ensuring adequate co-ordination of a suggested program of investigation of control measures. In co-operation with the European Productivity Agency, M. Frézal, head of the Algerian Plant Protection Service, was subsequently commissioned by EPPO to make a tour of countries in the Mediterranean area, to enquire particularly into the co-ordination of control measures. It is hoped that the report of this mission will be available to the forthcoming conference for consideration. The forthcoming conference will also discuss problems relating to residual effects of chemical treatment of fruit and to phytosanitary requirements for imports of fruit from countries infested by the fly.

Roma - Tip. del Senato del dott. Giovanni Bardi

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